AXLE FINAL DRIVE ASSEMBLY WITH PIVOTING GEAR SET

CROSS-REFERENCE TO RELATED APPLICATION(S)

[0001] Not applicable.

STATEMENT OF FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

FIELD OF THE DISCLOSURE

[0003] This disclosure relates to axle arrangements of work vehicles, and in particular, to final drive assemblies in axle arrangements of work vehicles.

BACKGROUND OF THE DISCLOSURE

[0004] Various types of work vehicles, such as tractors, include ground-engaging wheels or tracks. For agricultural tractors, particularly those configured for row crop functionality, it may be desirable to adjust the lateral spacing between left and right wheels or tracks. Typically, to adjust the wheel or track width of a tractor, the axle shafts of the axle arrangement are elongated to enable a range of positions for adjustments. However, these arrangements may be relatively complex and/or subject to reliability issues.

SUMMARY OF THE DISCLOSURE

[0005] The disclosure provides final drive assemblies in axle arrangements of work vehicles.

[0006] In one aspect, the disclosure provides an axle final drive assembly for a work vehicle. The axle final drive assembly includes a final drive housing; an output shaft extending from the final drive housing; a planetary gear set contained in the final drive housing and having an element fixed to the output shaft; and an input member contained in the final drive housing providing rotational input to the planetary gear set for driving the output shaft. The planetary gear set, at least in part, is pivotally coupled to the input member.

[0007] In another aspect, the disclosure provides a driveline for a work vehicle. The driveline includes a first drive system with a drive wheel; a first axle shaft with a first end and a second end, the first end of the first axle shaft engaging the drive wheel of the first drive system; and a first final drive assembly. The first final drive assembly includes a final drive housing receiving the second end the first axle shaft; and a planetary gear set contained in the final drive housing and having an element fixed to the first axle shaft. The driveline further includes an axle arrangement center section configured to receive rotational input from a drive shaft and comprising an input member to distribute at least a portion of the rotational input to the planetary gear set for driving the first axle shaft. The planetary gear set, at least in part, is pivotally coupled to the input member of the axle arrangement center section.

[0008] The details of one or more embodiments are set forth in the accompanying drawings and the description below. Other features and advantages will become apparent from the description, the drawings, and the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. **1** is a left front perspective view of an example work vehicle in the form of a track agricultural tractor in which the disclosed axle final drive assembly may be used according to an embodiment;

[0010] FIG. **2** is a front view of the tractor of FIG. **1**;

[0011] FIG. **3** is a front perspective view of an axle arrangement that may be incorporated into the tractor of FIG. **1** according to an embodiment;

[0012] FIG. **4** is a partial cross-sectional view of a final drive assembly of the axle assembly of FIG. **3** according to an embodiment;

[0013] FIG. **5** is a closer view of a portion of a sun gear of the final drive assembly of FIG. **4** according to an embodiment;

[0014] FIG. **6** is a closer view of a portion of a planet gear of the final drive assembly of FIG. **4** according to an embodiment; and

[0015] FIG. **7** is a closer view of a set of support bearings that may be incorporated into the final drive assembly of FIG. **4** according to a further embodiment;

[0016] Like reference symbols in the various drawings indicate like elements.

DETAILED DESCRIPTION

[0017] The following describes one or more example embodiments of the disclosed axle final drive assembly in an axle arrangement of a track work vehicle, as shown in the accompanying figures of the drawings described briefly above. Various modifications to the example embodiments may be contemplated by one of skill in the art.

[0018] As used herein, unless otherwise limited or modified, lists with elements that are separated by conjunctive terms (e.g., "and") and that are also preceded by the phrase "one or more of" or "at least one of" indicate configurations or arrangements that potentially include individual elements of the list, or any combination thereof. For example, "at least one of A, B, and C" or "one or more of A, B, and C" indicates the possibilities of only A, only B, only C, or any combination of two or more of A, B, and C (e.g., A and B; B and C; A and C; or A, B, and C).

[0019] As used herein, the term "axial" refers to a dimension that is generally parallel to an axis of rotation, axis of symmetry, or centerline of a component or components. For example, in a cylinder or disc with a centerline and opposite, generally circular ends or faces, the "axial" dimension may refer to the dimension that generally extends in parallel to the centerline between the opposite ends or faces. In certain instances, the term "axial" may be utilized with respect to components that are not cylindrical (or otherwise radially symmetric). For example, the "axial" dimension for a rectangular housing containing a rotating shaft may be viewed as a dimension that is generally in parallel with the rotational axis of the shaft. Furthermore, the term "radially" as used herein may refer to a dimension or a relationship of components with respect to a line extending outward from a shared centerline, axis, or similar reference, for example in a plane of a cylinder or disc that is perpendicular to the centerline or axis. In certain instances, components may be viewed as "radially" aligned even though one or both of the components may not be cylindrical (or otherwise radially symmetric). Furthermore, the terms "axial" and "radial" (and any derivatives) may encompass directional relation-